

CLAIMS

What is claimed is:

- 1 1. An optical cavity, comprising:
2 a first a non-concave reflector positioned at a first end of the optical cavity, the
3 reflector being configured to focus light that reflects off of the reflector back upon
4 itself to avoid diffraction losses from the optical cavity; and
5 a second non-concave reflector positioned at a second end of the optical cavity
6 that receives and reflects light reflected from the first non-concave reflector.
- 1 2. The optical cavity of claim 1, wherein the first non-concave reflector
2 includes an outer layer of material that has a thickness that varies as a function of
3 radial distance out from an axial center of the outer layer.
- 1 3. The optical cavity of claim 2, wherein the outer layer includes a
2 substantially convex, semispherical outer surface and a substantially planar inner
3 surface.
- 1 4. The optical cavity of claim 1, wherein the first non-concave reflector
2 includes an outer layer of material that has an index of refraction that varies as a
3 function of radial distance out from an axial center of the outer layer.

1 5. The optical cavity of claim 4, wherein the outer layer is substantially
2 planar.

1 6. The optical cavity of claim 1, wherein the reflectors include a plurality
2 of material layers oriented in a stacked arrangement.

1 7. The optical cavity of claim 6, wherein the material layers have different
2 indices of refraction than adjacent material layers.

1 8. The optical cavity of claim 6, wherein the material layers have quarter
2 wave optical thicknesses.

1 9. An optical cavity, comprising:
2 first non-concave means for reflecting light at a first end of the optical cavity,
3 the first non-concave means for reflecting light including means for focusing the light
4 that reflects off of the first non-concave means for reflecting light so that diffraction
5 losses from the optical cavity are reduced; and
6 second non-concave means for reflecting light at a second end of the optical
7 cavity that receives and reflects light reflected from the first non-concave means for
8 reflecting light.

1 10. The optical cavity of claim 9, wherein the first non-concave means for
2 reflecting light includes an outer layer of material that has a thickness that varies as a
3 function of radial distance out from an axial center of the outer layer.

1 11. The optical cavity of claim 10, wherein the outer layer includes a
2 substantially convex, semispherical outer surface and a substantially planar inner
3 surface.

1 12. The optical cavity of claim 9, wherein the first non-concave means for
2 reflecting light includes an outer layer of material that has an index of refraction that
3 varies as a function of radial distance out from an axial center of the outer layer.

1 13. The optical cavity of claim 12, wherein the outer layer is substantially
2 planar.

1 14. The optical cavity of claim 9, wherein the means for reflecting light at
2 the first and second ends of the cavity include a plurality of material layers oriented in
3 a stacked arrangement.

1 15. The optical cavity of claim 14, wherein the material layers have
2 different indices of refraction than adjacent material layers.

1 16. The optical cavity of claim 14, wherein the material layers have quarter
2 wave optical thicknesses.

1 ✓ 17. An optical device, comprising:
2 an optical cavity including:
3 a first reflector positioned at a first end of the optical cavity, the first reflector
4 including a layer of material having a thickness that varies as a function of radial
5 distance out from an axial center of the layer such that the first reflector is configured
6 to focus light that reflects off of the first reflector to avoid diffraction losses from the
7 optical cavity; and
8 a second reflector positioned at a second end of the optical cavity that receives
9 and reflects light reflected from the first reflector.

1 18. The optical cavity of claim 17, wherein the outer layer includes a
2 substantially convex, semispherical outer surface and a substantially planar inner
3 surface.

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1 19. An optical device, comprising:
2 an optical cavity including:
3 a first reflector positioned at a first end of the optical cavity, the first reflector
4 including a layer of material that has an index of refraction that varies as a function of
5 radial distance out from an axial center of the layer such that the first reflector is
6 configured to focus light that reflects off of the first reflector to avoid diffraction
7 losses from the optical cavity; and
8 a second reflector positioned at a second end of the optical cavity that receives
9 and reflects light reflected from the first reflector.

1 20. The optical cavity of claim 4, wherein the outer layer is substantially
2 planar.

1 21. A method for manipulating light in an optical device, comprising:
2 reflecting light between two reflectors of an optical cavity of the optical
3 device; and
4 focusing the light with a layer of material having a thickness that varies as a
5 function of radial distance out from an axial center of the layer to reduce diffraction
6 losses.

- 1 22. A method for manipulating light in an optical device, comprising:
2 reflecting light between two reflectors of an optical cavity of the optical
3 device; and
4 focusing the light with a layer of material having an index of refraction that
5 varies as a function of radial distance out from an axial center of the layer to reduce
6 diffraction losses.
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